[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[Docket No. 50-608; NRC-2023-0029]

SHINE Technologies, LLC; SHINE Medical Isotope Production Facility

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing an environmental assessment (EA) and finding of no significant impact (FONSI) regarding the NRC's consideration of issuance of a proposed amendment to the SHINE Technologies, LLC (SHINE, the licensee) Construction Permit No. CPMIF-001, issued on February 29, 2016, as amended. The permit authorizes the construction of the SHINE Medical Isotope Production Facility (SHINE facility) in Rock County, Wisconsin. If approved, the proposed amendment would authorize the receipt and possession of contained special nuclear material (SNM) necessary for the continued construction of the SHINE facility.

DATES: The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2023-0029** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to https://www.regulations.gov and search for Docket ID **NRC-2023-0029**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the "For Further Information Contact" section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at https://www.nrc.gov/reading-rm/adams.html. To begin the

search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the “Availability of Documents” section.

- **NRC’s PDR:** You may examine and purchase copies of public documents, by appointment, at the NRC’s PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Michael Balazik, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-2856; email: Michael.Balazik@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is considering issuance of an amendment to Construction Permit No. CPMIF-001, issued to SHINE for the construction of the SHINE facility in Rock County, Wisconsin. SHINE requested the amendment by letter dated October 6, 2022, as supplemented by letter dated February 17, 2023, in accordance with section 50.90 of title 10 of the *Code of Federal Regulations* (10 CFR), “Application for amendment of license, construction permit, or early site permit.” The amendment would authorize the receipt and possession of SNM (i.e., uranium-235) contained in the form of neutron detectors (i.e., fission chambers) necessary for the continued construction of the SHINE facility.

In accordance with 10 CFR 51.21, “Criteria for and identification of licensing and regulatory actions requiring environmental assessments,” the NRC prepared an EA, pursuant to 10 CFR 51.30, “Environmental assessment,” that analyzes the

environmental impacts of the proposed amendment and alternatives as appropriate. Based on the results of this EA, which is set forth in section II in this document, and in accordance with 10 CFR 51.31, “Determinations based on environmental assessment,” paragraph (a), the NRC has determined not to prepare an environmental impact statement for the proposed amendment and is issuing a FONSI, which is set forth in section III in this document.

II. Environmental Assessment

Description of the Proposed Action

The proposed action would amend Construction Permit No. CPMIF-001 to authorize SHINE to receive and possess the SNM contained in the form of neutron detectors, which is necessary for the continued construction of the SHINE facility in Rock County, Wisconsin. The proposed action is requested in the licensee’s application dated October 6, 2022, as supplemented by letter dated February 17, 2023.

Need for the Proposed Action

The SNM described in the licensee’s application is contained in the form of neutron detectors, which are required for the continued construction of the SHINE facility and would be installed within the facility’s neutron flux detection system (NFDS). The licensee’s request to receive and possess this SNM is in accordance with applicable provisions in 10 CFR part 70, “Domestic Licensing of Special Nuclear Material.” The SNM consisting of uranium-235 is contained in neutron detectors, as described in section 7.8, “Neutron Flux Detection System,” of the SHINE final safety analysis report, for installation within the NFDS. The NFDS monitors variables important to the safety functions of an irradiation unit that provide input to the facility’s target solution vessel reactivity protection system to perform its safety functions.

The NRC regulations in 10 CFR part 70 contain requirements for the receipt, possession, use, and transfer of SNM.

Environmental Impacts of the Proposed Action

The NRC has completed its environmental review of the proposed action and concludes that there are no significant environmental impacts associated with the proposed action.

As an initial matter, the proposed action would amend the SHINE construction permit to authorize the receipt and possession of SNM necessary for continued construction of the SHINE facility in accordance with applicable provisions in 10 CFR part 70, which ensure the safety of such receipt and possession. Thus, before the NRC could approve the proposed action, it would have to conclude that the applicable provisions in 10 CFR part 70 are satisfied.

Additionally, the NRC previously evaluated the environmental impacts associated with constructing, operating, and decommissioning the SHINE facility in NUREG-2183, ‘‘Environmental Impact Statement for the Construction Permit for the SHINE Medical Radioisotope Production Facility’’ (FEIS), dated October 2015, and in NUREG-2183, Supplement 1, “Environmental Impact Statement Supplement Related to the Operating License for the SHINE Medical Isotope Production Facility” (FSEIS), dated January 2023. The FSEIS updates the FEIS and only covers matters that differ from those or that reflect significant new information relative to that discussed in the FEIS. In the FSEIS, the NRC staff concluded that the impacts of SHINE facility construction, operation, and decommissioning are either less than or bounded by the analysis of impacts presented in the FEIS.

The licensee is also required to comply with occupational dose limits in 10 CFR part 20, “Standards for Protection Against Radiation,” subpart C, “Occupational Dose Limits,” and radiation dose limits for individual members of the public in 10 CFR part 20, subpart D, “Radiation Dose Limits for Individual members of the Public,” at all times.

As provided in the application, the proposed amendment authorizing the receipt and possession of contained SNM would not change the types or amounts of radioactive

materials in effluents, wastes, and products of the SHINE facility, nor would it increase the probability of accidents. The requested materials would be received and securely stored in an access-controlled area prior to installation into the NFDS. SHINE would inspect, inventory, and place the requested materials into secure storage in accordance with the requirements of 10 CFR 20.1902, "Posting requirements." Shielding would be used as appropriate to minimize radiation exposure of personnel while the requested materials are in storage in accordance with 10 CFR 20.1201, "Occupational dose limits for adults." The requested materials would be in solid form contained within enclosed components that do not present contamination or accidental release hazards. Finally, the application provided that the receipt and possession of the requested materials would not result in the generation of radiological waste.

Additionally, the application provided that there would be no new or substantially different radiological hazards resulting from the receipt and possession of the contained SNM as compared to the construction-related radiological hazards discussed in section 4.8.1.1, "Radiological," of the FEIS. In the FEIS, the NRC staff determined that SHINE has adequate controls in place to ensure that the dose to workers and the public from radioactive materials is within the dose limits of 10 CFR part 20, including a radiation protection program. In the FSEIS, the NRC staff identified no differing or significant new information related to radiological impacts beyond the information in the FEIS.

The transportation of the requested materials would be required to adhere to the applicable regulatory packaging and transportation requirements in NRC regulations (10 CFR parts 20 and 71), the State of Wisconsin Administrative Code Chapter 326, "Transportation," and Department of Transportation requirements (49 CFR parts 172 and 173).

Based on the above, the NRC staff concludes that the proposed action would not have significant radiological human health impacts.

Nonradiological impacts to human health of the construction, operation, and decommissioning of the SHINE facility were previously assessed in section 4.8.1.2, "Nonradiological," of the FEIS. In the FSEIS, the NRC staff identified no differing or significant new information related to nonradiological impacts beyond the information in the FEIS. The application provided that the proposed amendment would not result in any new or substantially different nonradiological hazards resulting from the receipt and possession of the requested materials; therefore, the NRC staff concludes that nonradiological impacts during construction would remain small.

The proposed action would result in no additional direct impacts on land use or water resources, including terrestrial and aquatic biota, because the proposed action involves no new construction or modification of the SHINE facility operational systems previously assessed in the FEIS and the FSEIS. For this same reason, there would be no changes to the types or quantity of nonradiological effluents previously assessed in the FEIS and the FSEIS and, therefore, no changes to the facility's Wisconsin Pollutant Discharge Elimination System permit are needed. Similarly, there would be no changes in ambient air quality, no noticeable effect on socioeconomic conditions in the region, no environmental justice impacts, and no impacts to historic and cultural resources. Therefore, the NRC staff concludes that there would be no significant nonradiological impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC staff considered denial of the proposed action (i.e., the "no-action" alternative). Denial of the license amendment request would result in the licensee being unable to complete construction and begin operation of the SHINE facility. However, because the direct impacts from construction have largely already occurred and because the remaining construction, operating, and decommissioning impacts would generally be small as evaluated in the FEIS and the FSEIS, the environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources

There are no unresolved conflicts concerning alternative uses of available resources under the proposed action.

Agencies and Persons Consulted

No additional agencies or persons were consulted regarding the environmental impact of the proposed action. On April 20, 2023, the NRC notified the Wisconsin Department of Health Services of the EA and FONSI. The state provided no comments. The NRC staff determined that the proposed action would have no effect on Federally listed threatened or endangered species or critical habitat that could occur on or near the SHINE facility site and would have no effect on any historic properties. Therefore, consultation was not required under section 7 of the Endangered Species Act of 1973, as amended, or under section 106 of the National Historic Preservation Act of 1966, as amended.

III. Finding of No Significant Impact

The proposed action is the issuance of an amendment to SHINE Construction Permit No. CPMIF-001 to authorize SHINE to receive and possess contained SNM necessary for the continued construction of the SHINE facility in Rock County, Wisconsin.

Consistent with 10 CFR 51.21, the NRC prepared an EA to determine the impacts of the proposed action. On the basis of the EA included in section II in this document and incorporated by reference in this finding, the NRC concludes that the proposed action would not have a significant adverse effect on the probability of an accident occurring and would not have any significant radiological or nonradiological impacts. Therefore, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

Other than the application dated October 6, 2022, as supplemented by letter dated February 17, 2023, the related environmental documents are the FEIS and the

FSEIS. The FSEIS provides the latest environmental review of the construction, operation, and decommissioning of the SHINE facility and description of the environmental conditions at the SHINE facility.

This EA and FONSI and other related documents are accessible online in the ADAMS Public Documents collection at https://www.nrc.gov/reading-rm/adams.html. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov.

IV. Availability of Documents

The documents identified in the following table are available to interested persons through ADAMS, as indicated.

DOCUMENT	ADAMS ACCESSION NO.
NUREG-2183, "Environmental Impact Statement for the Construction Permit for the SHINE Medical Radioisotope Production Facility," dated October 2015 (FEIS)	ML15288A046
NUREG-2183, Supplement 1, "Environmental Impact Statement Related to the Operating License for the SHINE Medical Isotope Production Facility," dated January 2023 (FSEIS)	ML23026A312
Construction Permit No. CPMIF-001 for the SHINE Medical Isotope Production Facility, dated February 29, 2016, as amended	ML16041A473 (Package) ML19162A026 (Amendment No. 1) ML21320A224 (Amendment No. 2) ML22292A319 (Amendment No. 3)
SHINE Technologies, LLC, Final Safety Analysis Report, Chapter 7, "Instrumentation and Control Systems," Rev. 2, dated August 31, 2022	ML22249A136
SHINE Technologies, LLC, "Request to Amend Construction Permit No. CPMIF-001," dated October 6, 2022	ML22279A951

SHINE Technologies, LLC, “Request to Amend Construction Permit No. CPMIF-001 Response to Request for Additional Information,” dated February 17, 2023	ML23048A244

Dated: April 26, 2023.

For the Nuclear Regulatory Commission.

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